UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,559	09/02/2003	Ronald F. Rykowski	40678-8002US	3217

25096 7590 01/09/2006

PERKINS COIE LLP
PATENT-SEA
P.O. BOX 1247
SEATTLE, WA 98111-1247

EXAMINER	
AMADIZ, RODNEY	
ART UNIT	**PAPER NUMBER**
2675	

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/653,559	RYKOWSKI ET AL.	
	Examiner	Art Unit	
	Rodney Amadiz	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7-13 and 16-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-13 and 16-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/19/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 7-13, 17-22 and 25, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (4,825,201) in view of Nagai et al. (USPGPUB 2003/0016198).

As to claim 1, Watanabe et al. teaches a method for calibrating a visual display, the method comprising: (a) analyzing a visual display module (Fig. 5, note optical measuring device 12, which analyzes the display unit 1), the module comprising an array of pixels (picture elements which lie inside the display units); (b) determining a color value and a brightness value for each display unit (Col. 5, lines 40-44, and 53-55); (c) adjusting the color value and brightness value for each display unit (Col. 5, lines 44-50, 55-59 and Col. 6, lines 16-21); (d) calibrating the visual display module with the adjusted display unit values (Col. 5, lines 59-66). Although Watanabe et al. adjusts the color value and brightness value for each display unit, he doesn't explicitly state that the values are compared to standard color values and standard brightness values. However, in the background of the disclosure, Watanabe et al. teaches adjusting the picture elements red, blue and green in comparison with standard values (Col. 1, lines 34-38). At the time the invention was made, it would have been obvious to a person of

ordinary skill in the art to incorporate the principles of adjusting the color and brightness values to correspond with standard values as taught in the background of Watanabe et al, in the current visual display module taught by Watanabe et al. so that the panel as a whole would display in optimum condition (Col. 1, lines 47-50).

Furthermore, Watanabe et al. teaches analyzing, determining, adjusting and calibrating the color and brightness value of display units (see rejection above); he however, does not explicitly teach analyzing, determining, adjusting and calibrating chromaticity and luminance nor does he teach analyzing, determining, adjusting and calibrating at the pixel level. Note that Watanabe et al. teaches the display units holding a plurality of multi-color display panels each of which consists of picture elements (Col. 1, lines 18-20). Examiner cites Nagai et al to teach an image display device capable of analyzing, determining, adjusting and calibrating the chromaticity and luminance values at the pixel level of the display (Fig. 3—Chromaticity Correcting Portion 11 and Luminance Correcting Portion 13, See also Fig. 10, LED Driver 50B—Pg. 7 and 8, ¶ 84-93 and Pg. 10, ¶ 116-120). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the circuitry which analyzes, determines, adjusts and calibrates the chromaticity and luminance values at the pixel level as taught by Nagai et al. into the visual display taught by Watanabe et al. so as to obtain an extremely finely regulated display wherein a uniformed and well-reproducibility high quality image is produced with precision at the pixel level (Nagai et al.—Pg. 1, ¶ 9).

As to claims 10, 13, 22, Watanabe et al. teaches a method and an apparatus for calibrating a visual display, the method comprising: (a) analyzing a portion of the display

module (Fig. 5, note optical measuring device 12, which analyzes the display unit 1, also note Col. 5, lines 53-55, wherein portions are being analyzed one at a time), the portion comprising an array of pixels (picture elements which lie inside the display units); (b) determining a color value and a brightness value for each display unit within the array (Col. 5, lines 40-44, and 53-55); (c) storing the color value and brightness value for each display unit (Col. 5, line 55, optical measuring device 12 stores the measurement); (d) repeating steps (a) to (c) for each portion of the visual display module until all portions of the visual display module have been analyzed (Col. 5, lines 53-55 and Col. 5, line 67- Col. 6, line 4); (e) after all of the display units have been read, calculating correction factors for each display unit (Col. 5, lines 44-59); (f) applying the correction factors to each stored display unit (Col. 5, lines 44-50, 55-59 and Col. 6, lines 16-21); and (g) calibrating the visual display module with the corrected display unit values (Col. 5, lines 59-66). Also note that the data pixels are composed of liquid crystal material (Col. 1, lines 18-20). Although Watanabe et al. adjusts the color value and brightness value for each display unit, he doesn't explicitly state that the display units will display the same color values. However, in the background of the disclosure, Watanabe et al. teaches adjusting the picture elements red, blue and green in comparison with standard values (Col. 1, lines 34-38); therefore, each display unit displays the same standard color value. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the principles of adjusting the color and brightness values to correspond with standard values as taught in the background of Watanabe et al. in the current visual display module taught by

Watanabe et al. so that the panel as a whole would display in optimum condition (Col. 1, lines 47-50).

Furthermore, Watanabe et al. teaches analyzing, determining, adjusting and calibrating the color and brightness value of display units (see rejection above); he however, does not explicitly teach analyzing, determining, adjusting and calibrating chromaticity and luminance nor does he teach analyzing, determining, adjusting and calibrating at the pixel level. Note that Watanabe et al. teaches the display units holding a plurality of multi-color display panels each of which consists of picture elements (Col. 1, lines 18-20). Examiner cites Nagai et al to teach an image display device capable of analyzing, determining, adjusting and calibrating the chromaticity and luminance values at the pixel level of the display (Fig. 3—Chromaticity Correcting Portion 11 and Luminance Correcting Portion 13, See also Fig. 10, LED Driver 50B—Pg. 7 and 8, ¶ 84-93 and Pg. 10, ¶ 116-120). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the circuitry which analyzes, determines, adjusts and calibrates the chromaticity and luminance values at the pixel level as taught by Nagai et al. into the visual display taught by Watanabe et al. so as to obtain an extremely finely regulated display wherein a uniformed and well-reproducibility high quality image is produced with precision at the pixel level (Nagai et al.—Pg. 1, ¶ 9).

As to claims 2 and 11, note the discussion of Watanabe et al. above. Watanabe et al. teaches a method for calibrating a visual display further comprising: setting the visual display module image to the color red (Note description of background—Col. 1, lines 34-38 and 44-47); repeating steps (a) to (c) (steps (a)-(f) for claim 10) (Col. 5, lines

67- Col. 6, lines 4); and repeating steps (e) and (f) (steps (h)-(i) for claim 10) with the visual display module image set to green and blue (Col. 1, lines 34-38 and 44-47 and Col. 5, lines 67- Col. 6, lines 4). It is inherent that white light is produced when you combine red, green and blue lights. White light is used to determine the luminance of electronic displays. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to set the visual display module to red, green, blue and white in order to calibrate the display for chromaticity and luminance.

As to claim 17, Watanabe et al. teaches the method for calibrating a visual display wherein the process for storing the chromaticity value and luminance value for each pixel comprises storing the data in a database (Fig. 3, E^2 Prom, Col. 4, lines 48-49).

As to claims 7, 18, 19, 25 and 26, Watanabe et al. teaches a method and an apparatus for calibrating a visual display wherein the process for calculating correction factors for each pixel includes processing the data using a computer and a software (Fig. 6, note CPU 3 and ROM3). Watanabe et al. also teaches the process for recalibrating the visual display module further comprises uploading the corrected pixel values to firmware and/or software controlling the visual display (Fig. 6, ROM3 and Col. 6, lines 11-21). Finally, Watanabe et al. also teaches the interface (Figure 5, Correction-value Determining Device and Controller 8) coupled to both the capturing means (Optical Measuring Device 12) and the Visual Display (Display Unit 1).

As to claims 3 and 12, Watanabe et al. teaches each of the display units holding a plurality of multi-color display panels such as liquid crystals (Col. 1, lines 17-20).

Watanabe et al. does not teach the picture elements to be light-emitting diodes nor does he limit the reference to only liquid crystal displays (note the words "such as"). Examiner cites Nagai et al. to teach pixels in a display unit comprising of LED's (Nagai et al.—See Fig. 10 and note the R, G, B LED pixels). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to interchange the light emitting diodes as taught in the Nagai et al. reference in place of the liquid crystal picture elements taught by Watanabe et al. because of their long term reliability and low power consumption.

3. Claims 8, 9, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. and Nagai et al. as applied to claims 1 and 10 above, and further in view of Ott (USPGPUB 2004/0066515).

As to claims 8, 9, 20 and 21, Watanabe et al. teaches a method for calibrating a visual display. Watanabe et al. and Nagai et al. do not teach steps a-d taking place within a test station or darkroom. Watanabe et al. and Nagai et al. however, do not limit where the method takes place. Examiner cites Ott to teach a measuring device (Fig. 1, 1) used to determine pixel-by-pixel measurements. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the use of a test station as taught by Ott in the calibration of the visual display taught by Watanabe et al. and Nagai et al. in order to obtain precise measurements. Furthermore it would have been obvious to a person of ordinary skill in the art to calibrate a module

at a test station, darkroom or any environment with ideal conditions that would produce the best test results.

4. Claims 4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. and Nagai et al. in further view of (Jenkins et al. "Digital Imaging Colorimeter For Fast Measurement of Chromaticity Coordinate And Luminance Uniformity of Displays", herein referred to as "Jenkins").

As to claims 4 and 16, note the discussion of Watanabe et al. above. Watanabe et al. teaches all of the limitations of the claim including measuring the chromaticity value and luminance value with an optical measuring device (12). Watanabe et al. however, does not explicitly state that the optical measuring device is a colorimeter. Examiner cites Jenkins to teach a CCD photometer and colorimeter for determining the chromaticity value and luminance value for each pixel (Introduction, lines 8-15). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the CCD photometer and colorimeter as taught by Jenkins in the modified display taught by Watanabe et al. and Nagai et al. in order to measure multiple test points on a display thus saving time.

5. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. and Nagai et al. in further view of Hsu (USPGPUB 2004/0179208).

As to claims 23 and 24, note the discussion of Watanabe et al. above. Watanabe et al. teaches an optical measuring device (Fig. 5, Reference Number 12) for

capturing the image; however, Watanabe et al. does not teach the image-capturing device comprising a CCD (or CMOS) digital camera and lens. Examiner cites Hsu to teach an optical sensor (Fig. 2, Reference Numbers 3 and 4) composed of a CCD (or CMOS) digital camera (Page 1, ¶ 11). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the CCD or CMOS digital camera as taught by Hsu in the modified capturing means taught by Watanabe et al. and Nagai et al. in order to accurately produce high-quality images.

Response to Arguments

6. Applicant's arguments with respect to claims 1-4, 7-13 and 16-26 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney Amadiz whose telephone number is (571) 272-7762. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R.A.

R.A.
12/16/05

SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER